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Upgrade Science Post, White House Council Urges Bush

House Chairman Accuses NIH of Leaking Data to Inquiry Target

Rep. John Dingell (D-Mich.) is on the warpath again regarding NIH's handling of the so-called Baltimore case—a longrunning affair arising from allegations of a coverup of errors in a research paper co-authored by David Baltimore, Nobel laureate Director of the Whitehead Institute for Biomedical Research, at MIT. Dingell, a major power in Congress, chairs the Energy and Commerce Committee, which writes legislation for NIH, and also chairs its Subcommittee on Oversight and Investigations.

SGR has learned that Dingell is now accusing an NIH investigating panel, with the knowledge of the NIH legal counsel, of tipping off Baltimore about the findings of its investigation of the case. As a result, Dingell contends, Baltimore and his co-authors—after long denying that the paper contained errors—will publish a letter of correction in the November 18 *Cell*, where the disputed paper was published April 25, 1986. The Baltimore letter states that the corrections, on three points in the paper, "are not material alterations and do not affect the conclusions of the paper," which is on gene expressions in transgenic mice.

Dingell, in a letter last week to Otis R. Bowen, Secretary of Health and Human Services (HHS), charges that the purpose of the *Cell* corrections is to "preempt the findings" of the NIH investigation and "defuse the NIH report." The investigation and preparation of a report were assigned last spring to a panel consisting of Joseph M. Davie, Searle Pharmaceuticals; Hugh McDevitt, Stanford, and Ursula Storb, University of Chicago. Last summer, NIH officials told SGR that the report would be completed in August. Then they said it would be out in September.

A report has not been issued—and there is some question about whether it will be, or if it even exists. Nonetheless, as Dingell notes in his letter to Bowen, *Science* magazine—frequently a patsy for the NIH establishment line—reported on July 15: "According to sources close to the NIH investigation, the committee will report weaknesses in the controversial paper but will not accuse anyone of misconduct."

Referring to a meeting in September attended by Baltimore, his attorneys, the NIH investigating pan-

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The change of Administration was the main topic last week at the bi-monthly meeting of the White House Science Council (WHSC). But the savants on that body, meeting as usual behind closed doors, were as much in the dark as anyone about what lies ahead in policy and personnel, subjects of fascination in transitional Washington.

WHSC's main action was to send a letter to the transition team urging Bush to do as he said he would in science-policy during the campaign—upgrade the post of White House Science Adviser to Special Assistant to the President and elevate the Council from mere adviser to the Adviser to adviser to the President.

The differences may seem small, and as some wisemen of science policy warn, would matter not a bit in the absence of deep presidential interest in science and technology. But hierarchical location is meticulously calibrated in Washington power circles, which is why a

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In Brief

Two members long influential in research affairs will be gone via the retirement route when Congress convenes in January: Rep. Edward P. Boland (D-Mass.) and Senator William (Golden Fleece) Proxmire (D-Wis.), chairmen of the powerful Appropriations Subcommittee for NSF, NAS, DOE, and a few other agencies in their respective chambers. Also retiring is a relative newcomer to science on Capitol Hill, Senator Lawton Chiles, Chairman of the Appropriations Subcommittee for NIH.

With their next-in-lines also eligible for other committee posts, the successions won't be known for sure until Congress returns.

From the 1988 math manpower survey by the American Mathematical Society-Mathematical Association of America: in 1973-74, of the 938 math PhDs awarded by American universities, US citizens received 677, or 72 percent. In 1987-88, 798 math PhDs were awarded, of which US citizens received 363, or 45 percent.

Embarrassment of Riches? In the latest annual report of the Howard Hughes Medical Institute, President Purnell W. Choppin notes that HHMI, with a $5 billion endowment, "is the largest private endowment in the United States"—and that spending will rise from $178 million in fiscal 1987 to $230 million in 1988. "Those are big numbers," he concedes, "but they must be viewed in the perspective of the NIH, whose 1987 budget of $6 billion is notably greater than the entire HHMI endowment."

. . . Bad Memories of Late Appointment for Reagan's Aide

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seemingly insignificant notch or two up for presidential science advice has become an obsessional goal among some major figures in science-policy affairs.

The Council's letter suggested these steps be taken promptly, so that the enhanced Adviser and Council could be in on the beginning of the new Administration. Behind that recommendation was recollection of the late appointment, in April 1981, of Reagan's first Science Adviser, George A. Keyworth II, months after major policy decisions had been developed and were being put in place. Among them was a 12-percent reduction in research spending, a prospect that inspired the mandarins to unveil the usual forecasts of coming dark ages and imminent national decline. Astonishingly, the reaction was effective, but back then at the outset of the unknown Reagan Administration, it was a close call that's remembered today with grave concern.

Concern About OSTP

The recommendation from WHSC also reflects worries about the tattered condition of the White House Office of Science and Technology Policy (OSTP)—short on staff, low on budget, and with only spotty and often-uninfluential involvement in major sci-tech issues. A widely held view in Washington science-policy circles is that without a big boost and a fast start, OSTP will wither into oblivion.

The WHSC letter was a near-final act for the Council, which, according to current schedule, has one more meeting, in December, before its charter runs out. In September, too late for anything but appearances, William R. Graham, OSTP Director and White House Science Adviser, announced five appointments to the Council, bringing the membership to 16 (SGR, October 1). The move has no meaning, apart from signaling to the next Adminstration that the science-advisory apparatus is not as threadbare as rumor has it.

Science Adviser-Director Graham, like all other Reagan appointees, must submit an undated letter of resignation, thus giving the new Administration a bloodless option for making its own choices. Graham gave no clue as to whether he expects to be asked to continue in the post, or whether he would accept. But among the members of the Council, there was informal speculation about other candidates.

The names that came up included Governor John H. Sununu, of New Hampshire, an engineer, who leaves office in January. Sununu earned many credits during Bush's long march to the White House, starting with the crucial New Hampshire primary and continuing through the campaign. Published reports say that Sununu has rejected feelers about becoming Secretary of Energy, or perhaps some other cabinet post, and has expressed a preference for a senior White House staff job. The statesmen of science are probably flattering themselves by thinking that Science Adviser, even in an uplifted format, would be acceptable to Sununu. Nonetheless, his name does keep coming up.

Also in the rumor mill is Ralph E. Gomory, IBM Senior Vice President for Science and Technology, who is a WHSC member. Gomory is reported to have declined an interest in the post when the Reagan Administration was shopping around for a successor to Keyworth three years ago, but he's due to retire soon from IBM and may find it attractive this time.

Then there's Erich Bloch, four years into a six-year appointment as Director of the National Science Foundation, assertively happy in that job, and widely regarded as an outstanding performer in running NSF. When Keyworth resigned, the White House staff signaled invitingly to Bloch, but he responded that he'd strongly prefer to remain at NSF, and the matter never got as far as an explicit invitation. But the code of honor says that when the President calls, there's no choice but to accept.

Bloch was on a trip last week to the Antarctic, where NSF manages the US research program. There was no word from his senior staff concerning the quadrennial question of whether the Director of NSF—a presidential appointee, but with an appointment that extends beyond the presidential term—must resign, if requested. The legislative intent of the unusual six-year appointment was to keep the NSF post out of politics, and it has remarkably remained that way ever since. The first Director, Alan T. Waterman, was appointed by Truman, reappointed by Eisenhower, and served into the Kennedy Administration until retiring in 1963. The NSF legislative act merely says that the Director "may be removed" by the President, but it's never happened. In Bloch's case, with Bush in a friendly takeover from

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. . . Dingell Seeks Inquiry by HHS Inspector General

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el, and Robert Lanman, legal counsel for NIH, Dingell states in his letter to Bowen: "The Subcommittee staff was told by Mr. Lanman that during this meeting Dr. Baltimore was still not prepared to admit voluntarily that the *Cell* paper contained any errors. He [Lanman] indicated that the panel attempted to convince Dr. Baltimore that the problems had to be taken seriously. According to Mr. Lanman, Dr. Baltimore and his attorneys were able to infer the NIH panel's findings based on the questions being asked and realized what the panel would conclude. Dr. Baltimore and his attorneys then asked what they could do and it was suggested by NIH representatives that they write the letter to *Cell* admitting the errors and misstatements."

A member of Dingell's staff told SGR that Lanman provided that account of the meeting in a telephone conversation with staff members on November 4. Lanman, in response to an inquiry from SGR, said he had not seen Dingell's letter to Bowen. After it was read to him, he declined to comment.

Concerns about the accuracy of the 1986 *Cell* paper were initially raised by a postdoctoral fellow associated with the research, Margot O'Toole, who says that she was effectively railroaded out of a scientific career when she queried a scientifically sensational claim of the paper—that a foreign gene introduced into a mouse could cause its own genes to produce products that resembled those of the transgene. The forthcoming letter of correction in *Cell* includes an acknowledgement of an "overstatement of . . . specificity" regarding the reagent used to detect the transgenic effect.

The disputed paper, with O'Toole as the star witness, was the focus of a raucous hearing last spring at which Dingell assailed NIH as incompetent in dealing with fraud (SGR April 15). NIH officials, visibly shaken by the Chairman's anger, assured him that they would get on the case and clear it up quickly.

Dingell noted in his letter last week to the HHS Secretary that "after eight months, the NIH report still has not been completed," adding that the counsel for NIH has advised Dingell's staff investigators "that there is no draft report, and refuses even to estimate when one will be available."

Dingell's letter to Bowen concludes with a request for the HHS Inspector General to investigate "the premature release of the NIH committee's findings to *Science*, the unexplained delay in the preparation of a draft report, and the appropriateness of sharing the NIH committee's findings with the targets of the investigation and the suggestions made by the NIH committee members to the targets on actions that they could take to blunt the NIH committee's findings."

In the meantime, Dingell's staff is preparing for another hearing on the case, possibly in December. On detached duty to Dingell's Subcommittee on Oversight and Investigations is Walter Stewart, of NIH. He and his colleague, Ned Feder, are widely disliked on the NIH campus for their self-initiated investigations of what they contend to be an epidemic of scientific misconduct. In effect, they've been ostracized for publicly airing the community's laundry. The pair initially brought the Baltimore-O'Toole conflict to the Dingell committee's attention, and Stewart, shielded by Dingell from NIH retribution, is the scientific guide for the committee in this matter.—DSG

Transition

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the Reagan Administration, the widespread expectation is that Bloch will stay on at NSF.

At the National Institutes of Health, Director James B. Wyngaarden has had no indication of what's in store for him and has given no public indication of his intentions. The NIH post is also a Presidential appointment, but without a set term. Wyngaarden, who turned 64 in October, has held the NIH job since 1982. Off and on there have been rumors that he was tiring of the numerous political skirmishes that have lately afflicted NIH, and that after November 1, when he became eligible for federal retirement pay, he might be receptive to one of the offers that naturally come to NIH Directors.

At NASA, there's no expectation that Administrator James Fletcher will stay on, not only because he's 69, but mainly because he's been openly miserable in the job ever since he reluctantly returned from a previous tour, 1971-77, to preside over the post-*Challenger* crisis.

In science-policy circles, as elsewhere in post-election Washington, there's endless speculation about who leaves and who gets the important jobs, but at this early post-election stage, there are few reliable signs. Perhaps the most important is that Bush has said he wants to make his own appointments.

What is certain is that science, along with the rest of the federal establishment, faces another round of budget battles. With the Gramm-Rudman doomsday machine automatically set to meet strict deficit-reduction requirements, there are indications that severe cuts may be required in current spending plans. That's why the statesmen of science feel it's urgent to have their own man at the White House at the outset of the new Administration.—DSG

SSC: Issue Isn't Texas—It's Folly of US Going it Alone

Complaints of native-son favoritism have inevitably been aroused by the post-election announcement of a site near Dallas for the biggest chunk of pork on the federal landscape, the Superconducting Super Collider (SSC). But site is the wrong issue. The real question is whether the next stage in the immensely expensive business of high-energy physics should be a purely American-financed venture, or a model of international collaboration in sharing the staggering costs of "big" science.

The selection process was a politically germ free technocratic exercise that clearly met the SSC's complex criteria: suitable space, geology, power supply, airline service, and so forth for the 53-mile-around particle accelerator. But the selection makers, including the rectitudinous National Academy of Sciences, were walled off from two fundamental, intertwined issues: the SSC's effects on the straitened finances of American science and the possibilities for teaming up with other nations to explore the innards of the atom.

Background Reading

Risks and Benefits of Building the Superconducting Super Collider (107 pp., no charge), a downbeat report by the Congressional Budget Office (CBO), expresses doubt about the realism of cost estimates for the SSC, and provides extensive data on the costs, past and projected, of high-energy physics.

Order from: Congressional Budget Office, Publications, House Annex No. 2, 2d and D Sts. SW, Washington, DC 20515; tel. 202/226-2809.

When we were very rich, there would have been no legitimate doubts about building the SSC. But today, the gap between the needs and budgets of American science has widened to the point where proceeding with the colossal atom smasher would be like splurging on champagne in the midst of famine.

The estimated construction cost of the SSC is $4.4 billion, give or take 10 percent, spread over 10 years. But in atom-smashing, as in space and military affairs, the track record for accuracy of estimates is famously erratic, and almost invariably on the cheery side. One of the last big accelerator projects came in at over double the initial estimate, according to the Congressional Budget Office.

The stated budget for the SSC would amount to seven percent of all federal money for basic science, a hoggish slice for a single research project. Furthermore, atom smashing has nothing to offer for the technological woes of American industry. Ironically, the industrially primitive Soviet Union is strong in particle physics, while Japan maintains only a minor presence in the field.

In recent years, the costs of big science have risen to levels that rule out doing many of the good things that science could do, if it had the money. The National Science Foundation has no funds for repairing or replacing the crumbling generation of campus laboratories erected in the building wave of the 1960s. Budget stringencies have forced the Foundation to reduce its plans for a nationwide network of centers linking industry and academe in research aimed at promoting industrial competitiveness.

Research on better methods in science education—a desert on the American school scene—has long been starved for funds. And in the seemingly bountiful field of medical research, budgets are sufficient for only one out of three projects deemed worthy of support.

When plans for the SSC were unveiled in February 1987, Energy Secretary John Herrington expressed confidence about substantial foreign financial participation—"anywhere from a quarter to 50 percent of this project," he said. But no foreign money is in hand or promised. SSC boosters have privately expressed dismay and puzzlement over Herrington's unwarranted optimism. But the explanation for his rash forecast is probably quite simple: He made it up because he felt it would help sell the SSC on Capitol Hill, which is yet to vote money for construction.

While Japan says it is considering a financial stake in the SSC, Europe is planning its own big new atom smasher, the Large Hadron Collider, at the European Center for Nuclear Research (CERN), near Geneva. Though less powerful than the SSC, the European machine would nonetheless be a major advance in the field, at an estimated top cost of $3 billion, shared by a dozen nations. An American share would cost at most $1 billion, roughly 20 percent of the estimated cost of the SSC.

Despite a continuation of hallucinatory forecasts from the Department of Energy, Europe is preoccupied with the burdens of financing the CERN venture and has no money for the SSC. Even if it had, the Reagan Administration's crude technological protectionism has so offended European politics and industry that there's no interest in promoting high-tech science in the US.

Atom-smashing scientists constitute an international brotherhood, working together and publishing openly. The fruits of their research are available to all, which is why a madcap competition makes no sense. For purposes of national pride, it should be noted that two newly modernized American accelerators, at Stanford

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Fraud: Breuning Sentenced and Science Community Warned

Stephen E. Breuning, a run-of-the-mill scientific faker who got caught in the new era of concern about fraud in research, was sentenced last week in US District Court in Baltimore—and the scientific community was advised by the judge to register "a loud and serious message . . . that this is a very serious crime."

The sentence, an elaborate, tailor-made prescription that Judge Frank A. Kaufman minutely discussed during a 75-minute sentencing hearing, provides for:

- A two-year prison term, suspended except for sixty days of "work-release" residence in a halfway house or treatment center, which requires that Breuning be there when not at work.
- Community service totaling 250 hours.
- Five years probation.
- Restitution to his former place of employment, the University of Pittsburgh, of $11,352, his salary share in $163,000 of grant funds that the University returned to the National Institute of Mental Health (NIMH) because of Breuning's flawed work.
- A commitment to stay out of psychology research for 10 years or face a contempt-of-court charge.

Breuning thus goes into the record books as the first academic researcher prosecuted and convicted for misusing federal research funds. Others have been caught at greater sins against science, but fortunately for themselves, they were permitted to scurry into oblivion without anyone calling the sheriff.

After describing the sentence, the judge said he didn't want to impede Breuning's efforts to build a new career—running a music shop in Michigan—but, the judge added, "The sentence has to carry with it some kind of loss of liberty . . . to try to deter action of this kind by others."

Breuning, 36, pleaded guilty in September to two counts of providing false information on grant-renewal applications to NIMH in 1983—for which the maximum penalty per count is five years imprisonment and a $10,000 fine.

His "research" data, on tranquillizer dosages for severely retarded institutionalized children, were initially challenged by Robert Sprague of the University of Illinois, a senior worker in the field. Sprague had brought Breuning, a widely published and internationally recognized psychologist, into a multi-center research collaboration, but became suspicious about the uncommon orderliness of Breuning's data and his lack of primary research records.

NIMH and the University of Pittsburgh initially refused to investigate Sprague's suspicions, but Sprague persevered in demanding an inquiry. He was ultimately vindicated by a panel of experts appointed by NIMH (SGR March 15, 1987). A highly embarrassed NIMH then inexplicably declined to renew the research support it had provided for whistleblower Sprague for 18 uninterrupted years.

During the unusually lengthy sentencing hearing, the Assistant US Attorney prosecuting the case, E. Thomas Roberts, told the judge that Breuning's faked research had not had adverse effects on patients, since his contrived results, Roberts said, more or less went along with widely accepted legitimate work in the field. That assessment does not necessarily conflict with, but hardly matches, a finding of the NIMH expert panel, which reported that Breuning's research publications had "a

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Collider

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University and Fermilab, near Chicago, guarantee American preeminence in the field.

In the budget crunch that faces all federal programs, good sense calls for teaming up with Europe to build its lower-cost machine, with the understanding that next time around, Europe will pitch in to help finance an American-based 21st century machine. European scientists are interested in that possibilitity, but it has received no attention in American or European political circles.

The issue isn't the scientific desirability of the SSC. It is what will have to be foregone in the realm of promising scientific possibilities to satisfy the SSC's ravenous financial needs.

Moon Conference to Meet in LA

The 17th International Conference on the Unity of the Sciences, an annual convocation bankrolled by the Rev. Sun Myung Moon, will be held November 24-27 at the Stouffer Concourse Hotel, Los Angeles, with some 240 scientists from 50 countries attending, according to an announcement from the International Cultural Foundation, a Moon subsidiary.

The topic this year is "Absolute Values and the Reassessment of the Contemporary World." The announcement says that the conference chairman is Alvin M. Weinberg, former Director of the Oak Ridge National Laboratory, who has long been associated with the annual meetings. Also listed on the program are Frederick Seitz, former President of Rockefeller University; Sir John Eccles, 1963 Nobel laureate in medicine, and the Rev. Moon. The conferences have been shunned by others on the grounds that the right-wing reverend is embracing the prestige of science to enhance his credibility in other areas.

AID Drops Charges Against Malaria Research Chief

Citing its concerns about adverse publicity, the Agency for International Development (AID) has dropped all but one minor administrative count against James M. Erickson, the malaria research director it suspended on flimsy charges last year after he accused a contractor of incompetent performance.

Until now, the case has been a classic of revenge on the whistleblower. But, in a major turnabout, the Justice Department has begun an investigation of the object of Erickson's accusations, the American Institute of Biological Sciences (AIBS), which manages the malaria program for AID. The investigation includes the unexplained flow of AID research funds from AIBS to a research institute in Bogota to a numbered Swiss bank account.

Erickson was put on administrative leave with pay 13 months ago after AIBS accused him of sexual harrassment of an AIBS employe with whom he had had an affair. Erickson denied the harrassment charges, insisting that they were contrived to divert attention from AIBS's misuse of government funds and failures in management of the worldwide malaria program.

In a response to a federal court suit in which Erickson demanded that AID resolve his status, AID proposed on October 5 to suspend him without pay for two weeks on three separate charges arising from the AIBS accusations. Erickson contested that decision at an administrative hearing before Robert Halligan, Assistant to the AID Administrator for Personnel and Financial Management.

In a ruling dated November 3, Halligan, citing lack of sufficient evidence, dismissed two counts, one on sexual harrassment, the other on lack of candor in answering the charge of sexual harrassment. Part of a third count, alleging that Erickson had inappropriately favored AIBS in contract matters, was also dropped. The only item retained charged that Erickson had adversely affected "the confidence of the public in the integrity of the government." As a result, he's to be docked one week's pay and then will return to the status of administrative leave with pay.

In bringing the charges against Erickson, Lawrence W. Bond, Director of the AID Office of Personnel Management, stated that "substantial public exposure and notoriety have surrounded the Agency and malaria program as a result of your misconduct."

The Erickson case was first brought to public attention by SGR on June 15, 1988. The SGR account was followed by a report in the *New York Times* on July 17. And *Science* reported the case on July 29.

Meanwhile the Justice Department and the AID Inspector General are continuing their investigation of charges, now two years running, that Erickson misused AID funds. And the General Accounting Office, investigative arm of Congress, is making its own investigation of the whole mess.

Breuning

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significant impact" on "social policies concerning the care and treatment of the mentally retarded." The panel, chaired by Arnold J. Friedhoff, MD, Professor of Psychiatry at NYU, added, "There can be no question that States (e.g., Connecticut) have amended policies governing treatment practices in an effort to be consistent with what Dr. Breuning reports as scientific findings in his public addresses."

The main impact of Breuning's work, the prosecutor said, appears to be on the accuracy of the scientific literature. The journals in which Breuning published coauthored articles, Roberts said, "are sensitive to law suits," and are reluctant to publish retractions without the consent of all the authors of an erroneous paper. Judge Kaufman responded that he felt Breuning was "remorseful" and hoped he would cooperate in correcting the literature. Breuning and his attorney, Charles Lazar, huddled briefly, and Lazar assured the court "if approached by anybody, [Breuning] will work with them."

Sprague's sour experiences with upholding scientific integrity have since been reported on *60 Minutes* and a Public Television *Nova* special on scientific fraud. In addition, Sprague has been selected to receive an award from the American Association for the Advancement of Science.—DSG

TV Series Planned on Engineering

Plans for a six-part television series, "Great Projects: Engineering in Society," have been announced by the National Academy of Engineering (NAE), which is associated in the programs along with the South Carolina Educational Television Network and the Great Projects Film Co. Funds are being provided by the National Science Foundation, the American Society of Civil Engineers, Morrison-Knudsen Co., the US Bureau of Reclamation, and other organizations. The NAE Film Committee, chaired by Eric Walker, President emeritus of Pennsylvania State University, will serve as an adviser. The series is tentatively scheduled for broadcast starting in the fall of 1990.

In Print: High School Physics and Biotechnology Issues

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lite data collected by NASA, NOAA, and the US Geological Survey, and US access to foreign satellite data. The GAO says NOAA and the Survey face funding problems, while NASA is trying to develop technology for handing a 15-fold increase in materials over the next decade. It also notes that US specialists expressed concerns about future availability of the growing volume of foreign-generated satellite data.

Order from: GAO, PO Box 6015, Gaithersburg, Md. 20877; tel. 202/275-6241.

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Physics in the High Schools (66 pp., no charge), report of an extensive nationwide study by the American Institute of Physics, in collaboration with the American Association of Physics Teachers, says only 20 percent of students study physics (though courses are available to 96 percent), the majority of teachers have limited preparation, and complaints abound about inadequate equipment and poor mathematical background of students.

Order from: AIP, Division of Education and Employment Statistics, 335 East 45th St., New York, NY 10017-3483; tel. 212/661-9260, ext. 326.

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Biotechnology: Professional Issues and Social Concerns (111 pp., no charge), from the Commission on Scientific Freedom and Responsibility of the American Association for the Advancement of Science, this multi-author monograph ranges over the effects on research of academic-industrial ties and ethical issues associated with development and use of biotechnology products. Contributors include Roger N. Beachy and Roy Curtiss III, Washington University; Clifford Grobstein, UC San Diego; Sheldon Krimsky, Tufts; Jeffrey S. Price, Cetus Corp.; Chet Roberts, US Army Medical Corps, and Lidia S. Watrud, Monsanto.

Order from: AAAS, Office of Scientific Freedom and Responsibility, 1333 H St. NW, Washington, DC 20005; tel. 202/326-6798.

To the Editor: Overhead Isn't Stolen from Research Budgets

It is clear that you do not understand overhead [costs on research grants] and make an incorrect assertion in your report [SGR, October 15] that overhead money comes out of research appropriations, as if overhead stole from research appropriations. Many investigators apparently believe that they do their work in the equivalent of their own garages and that there are no costs, particularly facilities costs, associated with their work.

The Association of American Universities has recently completed a study on overhead and concluded that the reason overhead rates are varying so much between institutions and rising is due to the increasing costs of research facilities. This is set against a background of recognition that one of the greatest deficits in our research infrastructure is its facilities.

About one half of overhead goes to facilities and the rules for depreciation have been widely viewed to be unrealistic. The life of a scientific building is estimated to be about 50 years and that of equipment about 15 years. A more realistic assessment of the life of a scientific building would be 20 years and of equipment, 5 to 7 years. If a realistic rate were set for facilities, the rates quoted in SGR would escalate substantially in order to provide something other than the current generally substandard facilities for investigators to work in.

I have been both an investigator and an administrator and know precisely the importance of indirect costs in providing money which partially pays for the costs of first-rate research facilities. Scientists who believe that science would go faster if a larger fraction of money went to direct costs appear to believe in "administrative alchemy"—the creation of money by moving it from one pocket to another without changing what it is spent on.

John R. Durant, MD
Sr. Vice President, Health Affairs
Director of the Medical Center
University of Alabama, Birmingham

Correction

Several typographical errors occurred in the listing of overhead rates for "top-dollar" schools in SGR of October 15. The correct entries, for 1986 and 1989, respectively, are:

University of Colorado, 41.5, 42.5
University of Mississippi, 34.2, 44.0
Woods Hole Oceanographic Inst., 52.6, 57.8

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In Print: Technology Policy, Chinese Students, R&D Funds

The following publications are obtainable as indicated—not from SGR.

Technology Policy and Its Effect on the National Economy (House Report 100-1093; 204 pp., no charge), report of the Technology Policy Task Force of the House Science, Space, and Technology Committee, set up in April 1987 as a follow-on to the Committee's Task Force on Science Policy (SGR March 1, 1987). Reflecting the growing political passion for boosting industrial technology, the report recommends many government steps to enhance the commercial payoff from US spending on research. Some of the prescriptions are familiar; others tend toward the opaque. The Technology Task Force was chaired by Rep. Buddy MacKay (D-Fla.), who lost a close election for a Senate seat last week.

Order from: House Documents Room, R. H-226, US Capitol, Washington, DC 20515; tel. 202/225-3456.

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From the National Academy Press, publishing house of the National Academy of Sciences (NAS) and associated organizations:

Globalization of Technology (216 pp., $22.50 paperbound, $32.50 hardbound, in US, Canada, and Mexico; elsewhere, add 20 percent to all Academy Press prices), proceedings of the Sixth Convocation of the Council of Academies of Engineering and Technological Societies, March 30, 1987, in Washington. Founded in 1978, the Council is an association of engineering academies or similar organizations in Australia, Denmark, UK, US, Mexico, and Sweden. The proceedings include papers by major industrial executives, academics, and government officials. Related publications from the Academy Press: ***Technology and Global Industry (1987, 280 pp., paperbound only, $19.95)*** and ***Information Technologies and Social Transformation*** (1985, 184 pp., paperbound only, $14.95).

Chinese Students in America: Policies, Issues, and Numbers (144 pp., paperbound only, $10), written for the NAS Committee on Scholarly Communications with the People's Republic of China, by Leo A. Orleans, a China specialist, formerly on the staff of the Library of Congress. Against a background of uncertainty about Chinese government restrictions on studies abroad (SGR October 15, 1988), this monograph is valuable for its extensive data on enrollments and analysis of the concerns of the students and the Beijing government.

Order from: National Academy Press, 2101 Constitution Ave. NW, Washington, DC 20418; tel. 202/334-3313.

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Geographic Distribution of Industrial R&D Expenditures (NSF 88-317, 40 pp., no charge), a new entry in NSF's array of statistical studies, the report builds on past NSF tabulations of R&D in the states by identifying the industries in which the spending occurs. Covering funds supplied by federal and state agencies and industrial firms, the report says $78 billion was spent on industrial R&D in 1985. Of that sum, $17 billion was for aircraft and missiles R&D, $17 billion for electrical equipment, $11 billion for machinery (including computers), $9 billion for chemicals, and $7 billion for motor vehicles. California was tops, with 23 percent of all industrial R&D in the US and 41 percent of all federal funds for industrial R&D.

Order from: NSF, Division of Science Resources Studies, 1800 G St. NW, Washington, DC 20550; tel. 202/634-4622.

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Satellite Data Archiving: US and Foreign Activities and Plans for Environmental Information (GAO/RCED-88-201; 52 pp., no charge), report by the General Accounting Office (GAO), Congressional investigative agency, reflects concerns about storage and accessibility of satel-

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